

XIII.—*Twenty new Forms of Pteropus.*

By KNUD ANDERSEN.

FULL descriptions of the species and subspecies briefly diagnosed in this paper will appear in the new edition of the British Museum 'Catalogue of Chiroptera' now under preparation.

Pteropus hypomelanus canus, sub-sp. n.

Teeth averaging larger than in any other race of the species, except *Pt. h. lepidus*. Back, in the normal pale-coloured phase, pale mouse-grey, lightening to silvery whitish grey on rump, and with or without a distinct buffy suffusion; mantle some shade of hazel or chestnut; head similar to or brighter than mantle. Size as in *lepidus*.

Type. ♂ ad. skin and skull, Pulo Pandak, North Natuna Islands, Sept. 1894; collected by Ch. Hose; presented by the Tring Museum; B.M. 95. 11. 8. 3.

Specimens examined. Four, from the collections of the U.S. National (one *) and British Museums.

Range. North Natuna Islands: Pulo Panjang, P. Pandak, P. Laut.

Remarks.—This form is readily distinguished from *Pt. h. lepidus* by the conspicuously brighter tinge of the mantle and head.

Pteropus hypomelanus annectens, subsp. n.

Teeth not averaging larger than usual. Normal pale-coloured phase rather similar in colour to corresponding phase of *Pt. h. lepidus*, but generally more strongly suffused with golden ochraceous or paler or darker Prout's brown on back, and with brighter mantle and head. Forearm 130–134 mm.

Type. Imm. alc. and skull, Sirhassen, South Natunas, collected by A. Everett; B.M. 94. 9. 28. 25.

Specimens examined. Five, from the collections of the U.S. National (three †) and British Museums.

Range. Sirhassen, South Natuna Islands.

Remarks.—In characters as in habitat this race seems to occupy an intermediate position between *Pt. h. lepidus* (Tambelan Islands) and *Pt. h. tomesi* (Borneo); in the size of the teeth it accords with the latter form, in the colour of

* U.S. N. M. 104737; Pulo Laut, N. Natunas.

† U.S. N. M. 104732–34; Sirhassen.

the fur it approaches the former ; in the size of the skull it appears to average smaller than either.

Pteropus hypomelanus luteus, subsp. n.

The palest race of the species. Back, rump, and flanks same shade of brown (from nearly seal-brown to Mars-brown) ; head, mantle, throat, foreneck, breast, and belly ochraceous buff, buff, or cream-buff, with or without a brownish wash on throat and anal region. Forearm 128–136 mm.

Type. ♂ ad. skin and skull, Kiriwini Island, Trobriand group, 15th Feb. 1895 ; collected by A. S. Meek ; B.M. 96. 11. 5. 5.

Specimens examined. Seven, in the collection of the British Museum.

Range. New Guinea ; Conflict Is. (Itamarina) ; Trobriand group (Kiriwini) ; Woodlark I.

Remarks.—The difference in colour between *Pt. h. luteus* and any of the western races of the species (*geminus*, *enganus*, *condorensis*, *canus*, *lepidus*, *annectens*, *tomesi*) is very great, but the gap is completely overbridged by those races which, step for step, through the Philippines (*cagayanus*), Celebes (*macassaricus*), and the Gilolo group (*hypomelanus*), lead, in colour as in geographical habitat, up to *luteus*. The intimate relationship between all these forms is further shown by the fact that, save in the colour of the fur, they are in all respects (in skull, teeth, ears, quality, distribution, and length of fur, and external dimensions) indistinguishable from each other, except *enganus*, which averages smaller, *canus* and *lepidus*, in which the teeth average larger, and *annectens*, in which the skull averages smaller.

Pteropus satyrus, sp. n.

Allied to *Pt. hypomelanus*, but with smaller eyes and longer fur. Diameter of orbit 12·2 mm., against 12·7–13·2 in all forms of *Pt. hypomelanus* ; length of fur of back 18–19 mm., against 10–14 mm. in *Pt. hypomelanus*.—Back and rump blackish seal-brown, thinly and evenly sprinkled with pale greyish hairs, producing the general effect of a blackish colour slightly lightened with greyish. Centre of breast and belly golden buffy (type) or nearly cream-buff (paratype) ; sides of breast and belly, anal region, and flanks blackish very slightly sprinkled with pale greyish. Mantle chocolate (type) or between cinnamon and russet (paratype), these colours gradually darkening on sides of neck and fore-neck to dark chocolate (type) or russet (paratype). Crown

and sides of head mixed blackish, buffy, and pale greyish ; throat blackish. Forearm about 139 mm.

Type. ♂ ad. skin and skull, Narcondam, Andaman Islands, Oct. 1904 ; presented by C. G. Rogers, Esq. ; B.M. 6. 9. 1. 1.

Specimens examined. Two, in the collection of the British Museum.

Range. As yet only known from Narcondam, North Andamans.

Remarks.—This species probably replaces *Pt. hypomelanus* in the Andaman Islands. From the geographically nearest race of that species, *Pt. hypomelanus geminorum* (Mergui Archipelago), it differs chiefly in the conspicuously longer fur, the lesser amount of greyish admixture in the colour of the fur, the bright-coloured centre of breast and belly, and the slightly smaller eyes.—In general colour *Pt. satyrus* approaches the Andaman representative of the *Pt. melanotus* group, viz. *Pt. tylleri*, from which it is easily distinguished by the smaller size, much smaller skull and teeth, and less developed posterior basal ledges of premolars and molars.—In the Nicobars it is replaced by a distinct species, *Pt. faunulus*.

Pteropus colonus, sp. n.

Allied to *Pt. hypomelanus*, but much smaller. Forearm 109–114 mm.

Back and rump Prout's brown, rather thinly and inconspicuously sprinkled with greyish-white hairs. Breast, belly, and flanks dark Prout's brown (type) or Mars-brown (paratype), thinly (type) or thickly (paratype) sprinkled with greyish-white hairs. Mantle and sides of neck strongly contrasting with back, cream-buff slightly washed with ochraceous buff ; foreneck similar, but considerably darkened by admixture of brownish. Crown and occiput similar to mantle, the colour passing gradually into a darker shade on sides of head, and thus in turn into dark brownish on throat.

Type. ♀ ad. skin and skull, Alu, Shortland Island, Solomon Islands, April 1886 ; collected by C. M. Woodford, Esq. ; B.M. 87. 1. 18. 3.

Specimens examined. Two, in the collection of the British Museum.

Range. Shortland Island, West Solomons.

Remarks.—No doubt an eastern offshoot of *Pt. hypomelanus*. In the colour of the fur of the upperside it accords very

closely with the extreme eastern, New Guinea race of that species, *Pt. hypomelanus luteus*, differing chiefly in the smaller size, relatively shorter ears, and darker underparts.

Pteropus speciosus, sp. n.

Similar to *Pt. hypomelanus*, but skull considerably smaller; total length of skull about 57 mm., against 61–69 in all forms of *Pt. hypomelanus*. Back, in the ordinary phase, blackish conspicuously sprinkled all over with shining silvery whitish-grey hairs. Breast and front of belly orange-tawny; flanks and hinder belly similar to back. Mantle rich hazel, passing through a darker shade on sides of neck into chestnut on foreneck. Crown buffy, slightly mixed with blackish hairs; sides of head and throat mixed blackish and buffy grey. A blackish phase occurs. Externally smaller than any form of *Pt. hypomelanus* except *Pt. h. enganus*; forearm 120–123 mm.

Type. ♂ ad. alc. and skull, Malanipa Island, off Zamboanga ('Challenger' Expedition); presented by the Lords of the Treasury; B.M. 90. 2. 20. 4.

Specimens examined. Two, in the British Museum.

Range. Sulu Archipelago: Malanipa I., Sibutu I.

Pteropus mimus, sp. n.

Skull and teeth as in *Pt. speciosus*, colour of fur different. Back Vandyck-brown; rump similar, but washed with Mars-brown. Breast and belly pale golden ochraceous tinged with orange, heavily clouded with Mars-brown on breast and crissum, purer in tinge on belly; flanks dark Prout's brown, many hairs with tawny tips. Mantle rich ochraceous buff strongly tinged with orange (type), or between cinnamon and russet (paratype); sides of neck and foreneck nearly tawny. Crown similar to mantle; forehead and sides of head brownish mixed with buffy; throat seal-brown.

Type. ♀ ad. skin and skull, Macassar, S. Celebes; collected by Dr. A. R. Wallace; B.M. 7. 1. 1. 239 (Tomes Collection).

Specimens examined. Two, in the British Museum.

Range. Macassar, South Celebes.

Pteropus pelewensis, sp. n.

Allied to *Pt. admiralitatum*. General size of skull as in that species, but rostrum narrower, orbits smaller: maxillary width externally across m^1 - m^1 14.8 mm., against 16–17 in

Pt. admiralitatum; orbital diameter 11, against 12–12.5. Structure of teeth as in the allied species, but dentition on the whole slightly weaker, p_4 and m_1 markedly smaller. Fur shorter; approximate length on back 9–11 mm. (16–18 in *Pt. admiralitatum*). Colour of fur approaching that of *Pt. admiralitatum*. Forearm about 113 mm.

Type. ♂ ad. skin and skull, Pelew Islands; collected by Capt. Heinsolin (Godeffroy Museum); B.M. 74. 10. 5. 8.

Specimens examined. Two, in the British Museum.

Range. Pelew Islands.

Pteropus yapensis, sp. n.

Allied to *Pt. admiralitatum*. Size of skull as in that species, if not slightly larger, but temporal fossa much broader, zygomatic arches therefore much more flaring posteriorly (zygomatic width about 36 mm., against 32–33 in *Pt. admiralitatum*); frontal region between orbits broader; coronoid process markedly higher, coronoid height of mandible larger than $c-m^2$, but smaller than $c-m_3$, in *Pt. admiralitatum* subequal to $c-m^2$. Essential characters of dentition as in *Pt. admiralitatum*, but p^3 and p^4 distinctly larger, posterior basal ledges of p^3 , p^4 , p_3 , p_4 , and m_1 somewhat heavier and more sharply marked off from teeth, cingulum of canines broader. Length of fur as in *Pt. pelewensis*, shorter than in *Pt. admiralitatum*. Blackish above and beneath, sprinkled with whitish; mantle and sides of neck strongly contrasting yellowish buff; foreneck washed with russet. Forearm about 130 mm.

Type. ♂ ad. skin and skull, Yap Island, W. Carolines; collected by Capt. Peters (Godeffroy Museum); B.M. 74. 10. 5. 11.

Specimens examined. Two, in the British Museum.

Range. Western Caroline Islands: Yap and Mackenzie Islands.

Pteropus cognatus, sp. n.

Allied to *Pt. brunneus* (E. Queensland). General size of skull as in that species, but rostrum much shorter, from front of orbit to tip of nasals 17 mm., against 21 in *Pt. brunneus*; mandible markedly heavier posteriorly, coronoid height 26 mm. (rather greater than lower tooth-row, $c-m_3$), against 23.7 (less than lower tooth-row) in *Pt. brunneus*. m_3 considerably reduced, little more than half the size of p_1 ; also m^2 somewhat smaller than in *Pt. brunneus*. Colour essentially as in the allied species. Forearm approximately 121 mm.

Type. ♂ imm. skin and skull, San Christoval, S.E. Solomon Islands; collected by J. Macgillivray; presented by the Museum of Economic Geology; B.M. 55. 11. 7. 9.

Specimens examined. One adult skull, two immature skins and skulls, in the collection of the British Museum.

Range. San Christoval, S.E. Solomon Islands.

Pteropus rubianus, sp. n.

Allied to *Pt. rayneri*, but much larger. Back Vandyck-brown, rump sharply contrasting yellowish buff, mantle and foreneck dark russet, shading to deep tawny on sides of breast and belly, and to yellowish buff on crissum; centre of breast seal-brown; forehead and sides of face mottled yellowish buff and chestnut. Forearm 163 mm.

Type. ♂ ad. alc. and skull, Rubiana, Central Solomon Islands; collected by C. M. Woodford, Esq.; B.M. 88. 1. 5. 1. —The type is the only specimen examined.

Pteropus lavellanus, sp. n.

Allied to *Pt. rubianus*, but cingulum of upper and lower canines broader, general size of animal smaller, tibia relatively much shorter (65.5–67.5 mm., against 76.5 in *Pt. rubianus*), colour of fur darker. Back glossy seal-brown; rump varying from cinnamon-rufous, through cinnamon, to nearly orange ochraceous buffy, in any case strongly contrasting with dark back; occiput, mantle, and foreneck chestnut-chocolate; centre of breast and upper belly glossy blackish, forming a large oval patch; sides of breast and belly, including flanks, dark Mars-brown; circumocular space and sides of face mixed dark brown, buffy, and pale greyish. Forearm 151–156 mm.

Type. ♂ ad. skin and skull, Vella Lavella, Central Solomon Islands, 12th March, 1908; collected by A. S. Meek.

Specimens examined. Three, in the collection of the British Museum.

Range. Known from the type locality only.

Remarks.—The differential characters given above are based on a comparison with *Pt. rubianus*. From *Pt. grandis* (Shortland Island and Bougainville), which it closely resembles in the colour of the neck, back, rump, and underparts, *Pt. lavellanus* is readily distinguished by its smaller size (forearm of *Pt. grandis* 167–172 mm.), relatively shorter tibia (in *Pt. grandis* 76.5 mm.) and smaller ears, and by having the crown and face grizzled buffy, greyish, and dark brown, not uniform blackish or seal-brown as in *Pt. grandis*.

Pteropus solitarius, sp. n.

Allied to *Pt. lombocensis*, but smaller and paler in colour. Back Prout's brown, much lightened with buffy or buffy clay tips to the hairs; rump more unmixed buffy clay; breast, belly, and flanks much lighter than back, buffy tinged with golden clay; mantle between ochraceous buff and buff; fore-neck golden ochraceous buff, distinctly brighter than breast; occiput, crown, forehead, sides of face, chin, and throat nearly similar to mantle, though slightly darker, more tinged with tawny. Forearm 108·5 mm.

Type. ♂ ad. skin and skull, Alor Island (Ombay), Lesser Sunda Islands, 15th April, 1897; collected by A. Everett; B.M. 98. 11. 3. 16.—The type is the only specimen examined.

Pteropus rufus princeps, subsp. n.

Similar to *Pt. rufus rufus* (*Pt. edwardsi* auct.), but skull and external dimensions conspicuously larger. Total length of skull 77 mm. (69–73·8 in the typical form of the species); mandible 62 (54·5–58·2); forearm 170·5 (158·5–165·5).

Type. ♂ ad. alc. and skull, Fort Dauphin, S.E. Madagascar; collected by M. Cloisel; B.M. 91. 11. 30. 10.

Remarks.—The typical smaller form of the species is apparently confined to the northern and central part of Madagascar.

Pteropus lylei, sp. n.

Similar to *Pt. giganteus*, but in every respect much smaller; breast and belly usually blackish or seal-brown (as in *Pt. vampyrus*), but occasionally light-coloured (as in *Pt. giganteus*). Total length of skull 61–66·5 mm., against 71–76 in *Pt. giganteus*. Forearm 148–154 mm., against 163·5–176·5 in *Pt. giganteus*.

Type. ♀ ad. skin and skull, Bangkok, Siam, 20th Aug. 1903; presented by Th. H. Lyle, Esq.; B.M. 4. 4. 7. 2.

Specimens examined. Nine, in the collection of the Berlin (Bangkok specimens) and British Museums (Pechabun, Bangkok, Saigon).

Range. Siam (Pechabun, Bangkok); Saigon.

Remarks.—This species probably replaces *Pt. giganteus* in Siam, Cambodja, and Cochin-China. The Bangkok specimens in the Berlin Museum were catalogued by Matschie ('Megachiroptera,' p. 26; skull figured, pl. iv. fig. 8; 1899) under the name *Pteropus* (*Spectrum*) *assamensis*; McClelland's *Pt. assamensis* is, however, the Himalayan race of *Pt. giganteus*, *Pt. g. leucocephalus*, Hodgson.

Pteropus intermedius, sp. n.

Allied to *Pt. giganteus*, but breast and belly seal-brown or blackish like back. Forearm about 180 mm.

Type. ♂ ad. skin and skull, Amherst, near Moulmein; collected by W. Davison; presented by A. O. Hume, Esq.; B.M. 85. 8. 1. 101.

Remarks.—In skull and dentition this species is scarcely distinguishable from *Pt. giganteus*; in all external characters, except the colour of the breast and belly, it is similar to that species, though apparently rather larger; but it resembles *Pt. vampyrus* in the blackish colour of the breast and belly. From the geographically nearest race of *Pt. vampyrus*, viz. *Pt. v. malaccensis* (see below), it is readily distinguished by its much smaller size (forearm about 180 mm., against 200–209) and by having the foreneck nearly as bright-coloured as the mantle, in strong contrast to blackish breast and belly. From the Siamese *Pt. lylei* (forearm 148–154 mm.) it differs by its much larger size.

Pteropus vampyrus malaccensis, subsp. n.

Mantle bright-coloured, sharply contrasting with dark back. Skull, total length 76·5–86·5 mm.; forearm 200–209 mm.

Type. ♂ ad. skin and skull, Kuala Tembeling, Pahang, Malay Peninsula, 26th Aug. 1903; collected by H. C. Robinson, Esq.; B.M. 6. 10. 4. 7.

Specimens examined. Nineteen, from the collections of the Leyden (three, Sumatra; one, Banka), U.S. National (three, Linga Arch.*), and British Museums.

Range. Malay Peninsula; Sumatra; Linga Archipelago; Banka.

Remarks.—The range of *Pt. vampyrus*, in its full specific sense, covers almost exactly the Indo-Malayan subregion as defined by Wallace; only in the extreme south-east the species crosses "Wallace's line" and extends to Timor. Within this vast area *Pt. vampyrus* is differentiated into six races. Three of these, viz. *Pt. v. pluton* (Bali and Lombok), *Pt. v. edulis* (Savu and Timor), and *Pt. v. lanensis* (Philippines), are "melanistic" races, i. e. the mantle is generally blackish or Vandyck-brown, similar in colour to, or not strongly contrasting with, the back. In the three other races the mantle is generally some shade of buffy, much paler than, and strongly contrasting with, the back; of these,

* U.S. N. M. 101590–91, 101593.

Pt. v. natunæ (Natuna Islands and Borneo; see below) is characterized by its small size: forearm 182·5–196 mm.; *Pt. v. malaccensis* is considerably larger: forearm 200–209 mm.; *Pt. v. vampyrus* (Java) the largest: forearm 208–220 mm., and, together with *Pt. v. pluton* (Bali and Lombok), the largest bat known.

Pteropus vampyrus natunæ, subsp. n.

Similar to *Pt. vampyrus malaccensis*, but smaller. Skull, total length about 73–78 mm.; forearm 182·5–196 mm.

Type. ♂ ad. skin and skull, Pulo Panjang, North Natuna Islands, Sept. 1894; collected by E. Hose; presented by the Tring Museum; B.M. 95. 11. 8. 1.

Specimens examined. Twelve, in the collections of the Leyden, U.S. National*, and British Museums.

Range. North Natuna Islands (Bunguran; Pulo Panjang); N. Borneo (Sarawak).

Remarks.—See *Pt. vampyrus malaccensis* (above).

Pteropus morio, sp. n.

Allied to *Pt. alecto*, but much smaller and with much longer fur. Hair of back 16–17 mm., against 7–11 in *Pt. alecto*. Back seal-brown, slightly lightened by dark Vandyck-brown tips to most of the hairs and sprinkled with a few whitish hairs; rump conspicuously washed with pale Vandyck-brown, owing to brownish tips to hairs being longer and paler than on back; underparts essentially as in *Pt. alecto*; mantle deep chocolate with blackish bases to the hairs; sides of neck, foreneck, and head as in *Pt. alecto*. Forearm about 141 mm. (160–175 in *Pt. alecto*).

Type. ♀ ad. skin and skull, Waingapo, Sumba, Oct. 1896; collected by A. Everett; B.M. 98. 11. 3. 15.

Specimens examined. Four, in the collection of the British Museum.

Range. Sumba and Savu, Lesser Sunda Islands.

Pteropus pilosus, sp. n.

Allied to *Pt. pselaphon* (Bonin and Volcano Islands), but i_2 and p_1 larger, fur much shorter, forearm and tibia less thickly clothed, feet naked, colour much paler, external dimensions larger. i_2 more than three times (in *Pt. pselaphon* about twice and a half) the bulk of i_1 ; p_1 about twice the size of (in *Pt. pselaphon* subequal to) m_3 . Approximate length

* U.S. N. M. 104723–26; Bunguran.

of hair of back 20 mm. (30 mm. in *Pt. pselaphon*). Back and rump chocolate, conspicuously sprinkled with long shining whitish-grey or buffy-grey hairs; breast, belly, and flanks paler than upperside, between Vandyck-brown and Mars-brown, thickly mixed with long, coarse, buffy hairs; mantle and occiput deep tawny, shading to chocolate tawny on sides of neck and to Vandyck-brown on foreneck; mantle slightly, sides of neck and foreneck more thickly sprinkled with coarse buffy hairs; centre of crown golden buffy; forehead, sides of crown, sides of head, chin, and throat dark Vandyck-brown, thickly mixed with buffy or greyish-white hairs. Forearm about 151.5 mm. (in *Pt. pselaphon* 132.5-141, in the allied *Pt. tuberculatus* 119.5 mm.).

Type. ♂ ad. ale. and skull, Pelew Islands; Godeffroy Museum; B.M. 74. 10. 5. 3.—The type is the only specimen examined.

Pteropus dobsoni, nom. n.

Pteropus fuscus, Dobson, Cat. Chir. Brit. Mus. p. 59, pl. iv. fig. 5 (teeth) (June 1878).

The technical name given by Dobson to this species is preoccupied by *Pteropus fuscus*, E. Geoff., 1803 (Cat. Mamm. Mus. Nation. d'Hist. Nat. p. 46), which is *Pt. niger*, Kerr, 1792 (*Pt. vulgaris*, auct.); by *Pteropus fuscus*, Desmarest, 1803 (N. Dict. d'Hist. Nat. xix. p. 544), which is *Pt. subniger*, Kerr, 1792 (*Pt. rubricollis*, auct.); and by *Pteropus fuscus*, Blainville, 1840 (Ost. Mamm. i. Chéiropt. p. 100, pl. vi. fig. 1), which is *Pt. vampyrus*, L., 1758.

XLIII.—*New Bats and Rodents in the British Museum Collection.* By OLDFIELD THOMAS.

Murina balstoni, sp. n.

Allied to *M. suilla*, Temm., of which the Museum possesses a pair from the Willis Mts., E. Java, but distinguished by the following characters:—(1) The general colour is browner, not rufous or fulvous, the hairs of the back slaty grey at base. (2) The hind limbs and interfemoral membrane are but very sparsely covered with hair, instead of being rather thickly clothed, the edge of the membrane with but few scattered hairs along it. (3) The under surface is uniformly white or creamy, the sides not or quite inconspicuously more greyish